

Application no. 09/581,949
Amendment dated: July 2, 2004
Reply to office action dated: April 5, 2004

REMARKS

Upon entry of this Amendment, claims 1-4 and 44-52 will be pending in the application. By this paper, claim 1 has been amended, claims 5 and 6 have been cancelled, and new claims 44-52 have been added. Reconsideration and allowance of claims 1-4 and 44-52 in light of these amendments is respectfully requested.

Prior art rejections

According to office action dated April 5, 2004, claims 1-6 stand rejected under 35 U.S.C. 102(b) as being anticipated by Rorvig, U.S. patent number 5,181,259 ("Rorvig"). Reconsideration of these rejections and allowance of the pending claims are respectfully requested.

Independent claim 1

As amended, claim 1 recites limitations nowhere shown, described or suggested by Rorvig. Claim 1 has been amended to recite "producing a rate of change in energy in response to energy minimization; and classifying the input data using the rate of change in energy." Accordingly, claim 1 recites the stand alone use of the energy related quantity, the rate of change in energy, to classify the received data.

This claimed feature is missing from Rorvig. Rorvig discloses a traditional use of multidimensional scaling (MDS), to embed proximities (dissimilarities in Rorvig) in Euclidean space. Rorvig is clear on this point, stating at col. 2, lines 62-69 and col. 3, lines 1-3,

The term "multi-dimensional" scaling refers to a family of data analysis methods, all of which portray the data structure in a spatial fashion easily assimilated [sic] by the relatively untrained human eye. They construct a geometric representation of the data, usually in a Euclidean space of fairly low dimensionality. The essential ingredient found in all multi-dimensional scaling methods is the spatial representation of data structure.

Rorvig applies MDS to create spatial representations of various data structures. As disclosed in the specification, the MDS stress objective function can be interpreted as an energy function. Hence, as indicated in the office action, Rorvig's "solving with MDS" or using MDS

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to create spatial representations of data structures can be interpreted as applying energy minimization. However, Rorvig neither uses nor suggests the use of MDS for generating rates of change in energy. That is, Rorvig does not disclose the independent use of the energy related quantity, the rate of change in energy, to classify data, as recited by claim 1.

One current embodiment of the invention applies a multiple source version of MDS, individual differences multidimensional scaling (IDMDS), for energy minimization. In this embodiment, IDMDS energy minimization produces a rate of change in energy and this rate of change in energy is directly used to classify data. This direct or stand alone use of the rate of change in energy from energy minimization is not disclosed, suggested, or described by Rorvig and is a novel and nonobvious application of IDMDS and MDS to data classification.

Accordingly, since claim 1 recites limitations nowhere shown, described, or suggested by the prior art of record, this claim is submitted to be allowable over the prior art of record. Claims 2-4 are dependent from claim 1 and add further limitations thereto. Each of these claims is allowable for the same reasons. Withdrawal of the 35 U.S.C. § 102(b) rejection of claims 1-4 is respectfully requested.

Additional Claim Amendments

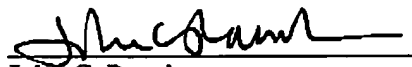
Claims 5 and 6 have been cancelled.

New claims 44-52 have been added to claim additional disclosed but unclaimed subject matter. No new matter is added by any of these amendments. Consideration and allowance of new claims 44-52 is respectfully requested.

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With this response, the application is believed to be in condition for allowance. Should the examiner deem a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,



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